Practitioner's Docket No. 228-009468-US(PAR)

CHAPTER II

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P., § 601, 7th ed.

TRANSMITTAL LETTER TO THE UNITED STATES ELECTED OFFICE (EO/US)

(ENTRY INTO U.S. NATIONAL PHASE UNDER CHAPTER II)

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/GB98/03537	26 November 1998	1 December 1997

TITLE OF INVENTION

METHOD AND APPARATUS FOR MONEY TRANSFERS

APPLICANT(S)

Henry WODEHOUSE, Stuart MCDONALD, Jon FRANCIS

Box PCT
Assistant Commissioner for Patents
Washington D.C. 20231

ATTENTION: EO/US

CERTIFICATION UNDER 37 C.F.R. § 1.10*
(Express Mail label number is mandatory.)
(Express Mail certification is optional.)

I hereby certify that this Transmittal Letter and the papers indicated as being transmitted therewith is being deposited with the United States Postal Service on this date June 1, 2000, in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EL336865470US, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Carm Marsh

(type or print name of person mailing paper)

Carm Marsh

Signature of person mailing paper

WARNING: *Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. § 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.*

"WARNING: *Each paper or fee filed by "Express Mail" **must** have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b).*
*"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will **not** be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.*

NOTE: To avoid abandonment of the application, the applicant shall furnish to the USPTO, not later than 20 months from the priority date: (1) a copy of the international application, unless it has been previously communicated by the International Bureau or unless it was originally filed in the USPTO; and (2) the basic national fee (see 37 C.F.R. § 1.492(a)). The 30-month time limit may not be extended. 37 C.F.R. § 1.495.

***WARNING:** Where the items are those which can be submitted to complete the entry of the international application into the national phase are subsequent to 30 months from the priority date the application is still considered to be in the international state and if mailing procedures are utilized to obtain a date the express mail procedure of 37 C.F.R. § 1.10 must be used (since international application papers are not covered by an ordinary certificate of mailing—See 37 C.F.R. § 1.8.*

NOTE: Documents and fees must be clearly identified as a submission to enter the national state under 35 U.S.C. § 371 otherwise the submission will be considered as being made under 35 U.S.C. § 111. 37 C.F.R. § 1.494(f).

1. Applicant herewith submits to the United States Elected Office (EO/US) the following items under 35 U.S.C. § 371:

   a. ☒ This express request to immediately begin national examination procedures (35 U.S.C. § 371(f)).

   b. ☒ The U.S. National Fee (35 U.S.C. § 371(c)(1)) and other fees (37 C.F.R. § 1.492) as indicated below:

2. Fees

CLAIMS FEE	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
☒*	TOTAL CLAIMS 48	47 −20=	27	× $18.00=	$ 486.00
	INDEPENDENT CLAIMS 13	13 −3=	10	× $78.00=	780.00
	MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ $260.00	
BASIC FEE**	☐ U.S. PTO WAS INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where an International preliminary examination fee as set forth in § 1.482 has been paid on the international application to the U.S. PTO: ☐ and the international preliminary examination report states that the criteria of novelty, inventive step (non-obviousness) and industrial activity, as defined in PCT Article 33(1) to (4) have been satisfied for all the claims presented in the application entering the national stage (37 C.F.R. § 1.492(a)(4)) ..... $96.00 ☐ and the above requirements are not met (37 C.F.R. § 1.492(a)(1)) ..... $670.00 ☒ U.S. PTO WAS NOT INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where no international preliminary examination fee as set forth in § 1.482 has been paid to the U.S. PTO, and payment of an international search fee as set forth in § 1.445(a)(2) to the U.S. PTO: ☐ has been paid (37 C.F.R. § 1.492(a)(2)) ..... $690.00 ☐ has not been paid (37 C.F.R. § 1.492(a)(3)) ..... $970.00 ☒ where a search report on the international application has been prepared by the European Patent Office or the Japanese Patent Office (37 C.F.R. § 1.492(a)(5)) $840.00				840.00
				Total of above Calculations	= 2,106.00
SMALL ENTITY	Reduction by 1/2 for filing by small entity, if applicable. Affidavit must be filed also. (note 37 C.F.R. § 1.9, 1.27, 1.28)				−
				Subtotal	
				Total National Fee	$ 2,106.00
	Fee for recording the enclosed assignment document $40.00 (37 C.F.R. § 1.21(h)). (See Item 13 below). See attached "ASSIGNMENT COVER SHEET".				
TOTAL				Total Fees enclosed	$ 2,106.00

*See attached Preliminary Amendment Reducing the Number of Claims.

i. ☒ A check in the amount of $2,106.00 to cover the above fees is enclosed.

ii. ☐ Please charge Account No. _____ in the amount of $ _____. A duplicate copy of this sheet is enclosed.

***WARNING:** *"To avoid abandonment of the application the applicant shall furnish to the United States Patent and Trademark Office not later than the expiration of 30 months from the priority date: * * * (2) the basic national fee (see § 1.492(a)). The 30-month time limit may not be extended." 37 C.F.R. § 1.495(b).*

WARNING: *If the translation of the international application and/or the oath or declaration have not been submitted by the applicant within thirty (30) months from the priority date, such requirements may be met within a time period set by the Office. 37 C.F.R. § 1.495(b)(2). The payment of the surcharge set forth in § 1.492(e) is required as a condition for accepting the oath or declaration later than thirty (30) months after the priority date. The payment of the processing fee set forth in § 1.492(f) is required for acceptance of an English translation later than thirty (30) months after the priority date. Failure to comply with these requirements will result in abandonment of the application. The provisions of § 1.136 apply to the period which is set. Notice of Jan. 3, 1993, 1147 O.G. 29 to 40.*

3. ☐ A copy of the International application as filed (35 U.S.C. § 371(c)(2)):

NOTE: Section 1.495 (b) was amended to require that the basic national fee and a copy of the international application must be filed with the Office by 30 months from the priority date to avoid abandonment. "The International Bureau normally provides the copy of the international application to the Office in accordance with PCT Article 20. At the same time, the International Bureau notifies applicant of the communication to the Office. In accordance with PCT Rule 47.1, that notice shall be accepted by all designated offices as conclusive evidence that the communication has duly taken place. Thus, if the applicant desires to enter the national stage, the applicant normally need only check to be sure the notice from the International Bureau has been received and then pay the basic national fee by 30 months from the priority date." Notice of Jan. 7, 1993, 1147 O.G. 29 to 40, at 35-36. See item 14c below.

a. ☐ is transmitted herewith.

b. ☐ is not required, as the application was filed with the United States Receiving Office.

c. ☐ has been transmitted

i. ☐ by the International Bureau.
Date of mailing of the application (from form PCT/1B/308): _____.

ii. ☐ by applicant on _____.
Date

4. ☐ A translation of the International application into the English language (35 U.S.C. § 371(c)(2)):

a. ☐ is transmitted herewith.

b. ☐ is not required as the application was filed in English.

c. ☐ was previously transmitted by applicant on _____.
Date

d. ☐ will follow.

5. ☒ Amendments to the claims of the International application under PCT Article 19 (35 U.S.C. § 371(c)(3)):

NOTE: *The Notice of January 7, 1993 points out that 37 C.F.R. § 1.495(a) was amended to clarify the existing and continuing practice that PCT Article 19 amendments must be submitted by 30 months from the priority date and this deadline may not be extended. The Notice further advises that: "The failure to do so will not result in loss of the subject matter of the PCT Article 19 amendments. Applicant may submit that subject matter in a preliminary amendment filed under section 1.121. In many cases, filing an amendment under section 1.121 is preferable since grammatical or idiomatic errors may be corrected." 1147 O.G. 29-40, at 36.*

a. ☐ are transmitted herewith.

b. ☐ have been transmitted

i. ☐ by the International Bureau.
Date of mailing of the amendment (from form PCT/1B/308): _____.

ii. ☐ by applicant on (date) _____.
Date

c. ☐ have not been transmitted as

i. ☐ applicant chose not to make amendments under PCT Article 19.
Date of mailing of Search Report (from form PCT/ISA/210.): _____.

ii. ☐ the time limit for the submission of amendments has not yet expired. The amendments or a statement that amendments have not been made will be transmitted before the expiration of the time limit under PCT Rule 46.1.

6. ☐ A translation of the amendments to the claims under PCT Article 19 (38 U.S.C. § 371(c)(3)):

a. ☐ is transmitted herewith.

b. ☐ is not required as the amendments were made in the English language.

c. ☐ has not been transmitted for reasons indicated at point 5(c) above.

7. ☒ A copy of the international examination report (PCT/IPEA/409)

☒ is transmitted herewith.

☐ is not required as the application was filed with the United States Receiving Office.

8. ☐ Annex(es) to the international preliminary examination report

a. ☐ is/are transmitted herewith.

b. ☐ is/are not required as the application was filed with the United States Receiving Office.

9. ☐ A translation of the annexes to the international preliminary examination report

a. ☐ is transmitted herewith.

b. ☐ is not required as the annexes are in the English language.

10. ☒ An oath or declaration of the inventor (35 U.S.C. § 371(c)(4)) complying with 35 U.S.C. § 115

    a. ☐ was previously submitted by applicant on _____. Date

    b. ☐ is submitted herewith, and such oath or declaration

        i. ☐ is attached to the application.

        ii. ☐ identifies the application and any amendments under PCT Article 19 that were transmitted as stated in points 3(b) or 3(c) and 5(b); and states that they were reviewed by the inventor as required by 37 C.F.R. § 1.70.

        iii. ☒ will follow.

II. Other document(s) or information included:

11. ☐ An International Search Report (PCT/ISA/210) or Declaration under PCT Article 17(2)(a):

    a. ☐ is transmitted herewith.

    b. ☐ has been transmitted by the International Bureau. Date of mailing (from form PCT/IB/308): _____.

    c. ☐ is not required, as the application was searched by the United States International Searching Authority.

    d. ☐ will be transmitted promptly upon request.

    e. ☐ has been submitted by applicant on _____. Date

12. ☐ An Information Disclosure Statement under 37 C.F.R. §§ 1.97 and 1.98:

    a. ☐ is transmitted herewith.

        Also transmitted herewith is/are:

        ☐ Form PTO-1449 (PTO/SB/08A and 08B).

        ☐ Copies of citations listed.

    b. ☐ will be transmitted within THREE MONTHS of the date of submission of requirements under 35 U.S.C. § 371(c).

    c. ☐ was previously submitted by applicant on _____. Date

13. ☐ An assignment document is transmitted herewith for recording.

    A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.

_____

_____

_____

14. ☒ Additional documents:
    a. ☐ Copy of request (PCT/RO/101)
    b. ☒ International Publication No. WO 99/28872
        i. ☒ Specification, claims and drawing
        ii. ☐ Front page only
    c. ☒ Preliminary amendment (37 C.F.R. § 1.121)
    d. ☐ Other

15. ☒ The above checked items are being transmitted
    a. ☒ before 30 months from any claimed priority date.
    b. ☐ after 30 months.

16. ☐ Certain requirements under 35 U.S.C. § 371 were previously submitted by the applicant on _____, namely:

AUTHORIZATION TO CHARGE ADDITIONAL FEES

WARNING: *Accurately count claims, especially multiple dependant claims, to avoid unexpected high charges if extra claims are authorized.*

NOTE: "A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).

NOTE: "Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

☒ The Commissioner is hereby authorized to charge the following additional fees that may be required by this paper and during the entire pendency of this application to Account No. 16-1350.

☒ 37 C.F.R. § 1.492(a)(1), (2), (3), and (4) (filing fees)

WARNING: *Because failure to pay the national fee within 30 months without extension (37 C.F.R. § 1.495(b)(2)) results in abandonment of the application, it would be best to always check the above box.*

☒ 37 C.F.R. § 1.492(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.492(d)), it might be best not to authorize the PTO to charge additional claim fees, except possible when dealing with amendments after final action.

☒ 37 C.F.R. § 1.17 (application processing fees)

☐ 37 C.F.R. § 1.17(a)(1)–(5) (extension fees pursuant to § 1.136(a).

☐ 37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

NOTE: 37 C.F.R. § 1.28(b) requires "Notification of any change in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying . . . issue fee." From the wording of 37 C.F.R. § 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

☒ 37 C.F.R. § 1.492(e) and (f) (surcharge fees for filing the declaration and/or filing an English translation of an International Application later than 30 months after the priority date).

PLEASE SEND ALL CORRESPONDENCE TO:

Reg. No.: 24,622

Tel. No.: (203) 259-1800

Customer No.:

SIGNATURE OF PRACTITIONER

Clarence A. Green

(type or print name of practitioner)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Express Mail No.: EL336865470US

In re Application of: WODEHOUSE et al.

INTERNATIONAL APPLICATION NO.: PCT/GB98/03537

INTERNATIONAL FILING DATE: 26 November 1998

U.S. SERIAL NUMBER:

FILING DATE: Herewith

TITLE: METHOD AND APPARATUS FOR MONEY TRANSFERS

ATTORNEY DOCKET NO.: 228-009468-US(PAR)

Box PCT
The Commissioner of Patents and Trademarks
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Dear Sir:

Please amend the above-identified, enclosed patent application as follows:

IN THE CLAIMS:

Please amend Claims 5, 8, 9, 13, 15, 17, 18, 19, 20, 26, 29, 30, 31, 34, 42, 43, 46 and 47 as shown below.

Claim 5, line 1, delete "2, 3 or 4,".

Claim 8, line 1, delete "any preceding claim" and insert --claim 1--.

Claim 9, line 1, delete "any preceding claim" and insert --claim 1--.

Claim 13, line 1, delete "or 12".

Claim 15, line 1, delete "12, 13, 14 or 15,".

Claim 17, line 1, delete "or 16".

Claim 18, line 1, delete "16 or 17,".

Claim 19, line 1, delete "16 or 17,".

Claim 20, line 1, delete "any preceding claim" and insert --claim 1--.

Claim 26, line 1, delete "22, 23, 24, or 25,".

Claim 29, line 1, delete "any of claims 21 to 28" and insert --claim 21--.

Claim 30, line 1, delete "any of claims 21 to 31" and insert --claim 21--.

Claim 31, line 1, delete "32" and insert --30--.

Claim 34, line 1, delete "or 33".

Claim 42, line 1, delete "or 41".

Claim 43, line 1, delete "any of claims 47 to 49" and insert --claim 40--.

Claim 46, line 1, delete "or 45".

Claim 47, line 1, delete "45 or 46,".

PLEASE CANCEL CLAIM 48.

REMARKS

Please enter this preliminary amendment prior to calculation of the fees.

Respectfully submitted,

1 June 2000

Date

Clarence A. Green, Reg. No. 24,622
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METHOD AND APPARATUS FOR MONEY TRANSFERS

This invention relates to method and apparatus for facilitating money transfer. The invention is particularly suitable for inter-country money transfers, but it is not limited exclusively to this.

Money transfer services are offered by a number of organisations, for example banks, the Moneygram organisation, and the Western Union organisation. A transferee wishing to transfer money is able to visit a local authorised agent and arrange for money to be made available for collection by a transferee at another authorised agent or bank, for example, in a different country.

In developing the present invention, it has been appreciated that conventional techniques suffer from certain problems:

(i) Identification of the transferee. Normally, a transferee will be required to present proof of identification, for example, a passport or driving licence, before being permitted to collect the funds. However, there are a large number of countries in which many people do not holds passports or other officially recognisable proof of identification. In such cases, money transfer may be limited to postal transfers. Western Union offers a code-word facility by which a transferor can provide a code word with the initial transfer instructions. The transferee is required to present a matching code word instead of presenting proof of identification.

(ii) Security. Particularly when a code word is used, there is a risk of the transferee, or other parties involved in the money transfer process, committing fraud. It will be appreciated that, especially in certain countries, fraud and corruption may be commonplace, and difficult to control from outside the country. In general, the transferee, and the bank staff in the country of the transferor and the transferee, all have access to the code word and sufficient other information to collect the funds and to complete the transaction (since no proof of identity is required). Such fraud is very difficult to detect and to prevent.

(iii) Accuracy of information. Often, information is passed orally within a transfer organisation by telephone. This can lead to inaccuracies in the information,

particularly when unfamiliar pronunciation is involved, or if two people are not fully conversant in the same language. For example, if a the name of the transferee is misspelt, then it may be impossible for the correct transferee to collect the funds even on presentation of proper identification. Such a common error can only be corrected by the transferor complaining to the transfer organisation, when he is notified of the non-delivery by the transferee; the full transfer details have to be taken again from the transferor to attempt a further transfer.

The present invention has been devised bearing the above problems in mind.

Broadly speaking, a first aspect of the invention is to provide the transferor with a secret identifier code (referred to in preferred embodiments as a party identification code or PIC) which is supplied to the transferor independently of the information exchanged with the transferor when the transferor is making a transfer request (for example, in the preferred embodiment, the PIC is sent to the transferor by post). The identifier code (or at least information related thereto) can be transmitted as part of the money transfer instructions through the money handling authorities. The transferor is required to transmit the secret identifier code to the transferee, and the transferee is, in turn, required to present the identifier code as one of the conditions to be met before the money can be collected by the transferee. Possession of the correct identifier by the transferee represents proof that the transferee has been authorised to receive funds by the transferor.

As used herein the term "money handling authority" refers to any authority empowered to handle money and, where appropriate, refers to any authority empowered to provide funds to a transferee. The term may include, but is not limited to, banks, internet banks, post offices, etc.

Such a technique can avoid the need for the transferee to possess official proof of identification, and can also improve security. In particular, the local handling agents at the point of sale to the transferor will not have access to sufficient information to receive the funds fraudulently.

Preferably, the identifier code (PIC) is allocated for at least one of the parties to the transfer (i.e. the transferor and/or the transferee). In the preferred embodiment, the identifier code (PIC) for the transferor, and the same code is re-used for subsequent transfers from the transferor to any transferee. This avoids the need for new identifier codes to be issued to the transferor for each transaction.

Broadly speaking, a second closely related aspect of the invention is to generate an identifier code (referred in preferred embodiments as a unique transaction code or UTC), and to provide the transferor with the code (to be forwarded by the transferor to the transferee), but provide the money handling authority instructed to handle the transfer with second code (referred in the preferred embodiments as a transaction verification code or TVC) related verifiably to the identifier code. The second code is sufficient to enable the money handling authority to verify that the transferee is authorised to receive the funds upon presentation of the complete code by the transferee. Upon collection of the funds, the money handling authority can return the complete identifier code through the banking system, as evidence that the funds have been collected by the authorised transferee.

Such a technique can provide security against a fraudulent "collection" of the transfer by the money handling authorities instructed to handle the transfer, since the money handling staff will not have access to the complete identifier code to complete validly the transaction by returning the full code as evidence of completion. If the funds are collected fraudulently by a person who has knowledge only of the second code (i.e. the TVC), and has therefore had to add a guessed code to the known code, this will be readily noticeable when the incorrect code is received back from the money handling authority.

Preferably, this aspect of the invention further comprises testing, at least selectively or on demand, the full identifier code information returned for each completed transfer against the originally allocated identifier code to verify that the correct transferee has collected the funds.

Although the above aspects can be used independently, particular advantages can be achieved by using the two aspects in combination. In particular, the technique can then ensure that neither the handling agents at the point of sale, nor the handling agents at the point of collection, possess all of the necessary information properly to complete a transfer. Only the transferor and the transferee possess the necessary codes (i.e. the PIC identifier code of the first aspect, and the UTC identifier code of the second aspect) needed to complete the transfer.

In a closely related aspect, the invention provides a method of generating a first identifier code (UTC in the preferred embodiments) and a second code (TVC in the preferred embodiments) related thereto, the method comprising:

generating the first code such that at least one character thereof represents a function of one or more other characters of the first code;

generating a second code comprising at least one, but not all, of the characters of the first code, and comprising information indicative of the position in said first code of said at least one character and/or of said one or more other characters.

Preferably, the characters of the first code are numeric.

Preferably, the function is a checksum (or sum) function.

Preferably, the second code comprises one or more "blank" characters representing missing character or digit positions of the first code.

Preferably, the function is based on characters in one or more predetermined positions in the first code, and said information represents the position in said first code of the result of the function.

In the preferred embodiment, the function is numeric sum function of the first four digits in the first code, and the information identifies where the result is to be found in the last four digits of the first code; a first character ("F") denotes that the result is in the first one or two digits of the last four; a second character ("M") denotes that the result is in the middle one or two digits of the last four; and a third character ("L") denotes that the result is in the last one or two digits of the last four. It will be

appreciated that other indexing systems could be used, for example, depending on the number of character positions available for the result.

In a closely related aspect, the invention provides a method of testing information provided by a transferee for collection of funds, the method comprising:

receiving transfer instructions including a first party identifier code allocated to at least one of the parties to the transfer, and a second transaction verification code related to a transaction identifier code allocated to the transaction;

(a) comparing the first party identifier code from the transfer instructions with a party identifier code provide by the transferee; and

(b) comparing the second transaction verification code with a transaction identification code provided by the transferee.

Preferably, the method further comprises returning the transaction identification code to the issuing authority as evidence that the transferee is authorised to receive the funds.

Preferably, the transaction verification code contains some, but not all of the characters of the transaction identification code, and the method comprises comparing each known character in the transaction verification code for equivalency with a corresponding character of the transaction identifier code.

Preferably, the transaction verification code includes information associated with the result of a function based on one or more characters of the transaction identification code, and the method comprises testing whether the transaction identification code presented by the transferee matches the function.

In a closely related aspect, the invention provides a money transfer system comprising:

at least one remote input unit operable to generate a money transfer request in accordance with information from a transferor; and

processing means for communicating with each remote unit for receiving and processing money transfer requests received therefrom, the processing means comprising:

means for providing a first identifier code associated with the transaction and/or with the identity of one or more parties to the transfer;

means for outputting first information including the first identifier code, to be communicated directly or indirectly to the transferor independently of the communication with the terminal; and

means for outputting second information to be supplied directly or indirectly to a money handling authority as instructions to effect the transfer for collection, the second information including at least a portion of the first identifier code or information related thereto to enable the authority of the transferee to be verified.

Preferably, the system includes a plurality of terminals. Preferably, the processing means (also referred to herein as the server), is able to communicate with each terminal at various times during a working day, to control the terminals directly, or to upload transfer requests (and any other information) logged by the terminals while off-line (if off-line operation is supported).

In a further closely related aspect, the invention provides a money transfer system comprising:

at least one remote input unit operable to generate a money transfer request in accordance with information from a transferor; and

processing means for communicating with each remote unit for receiving and processing money transfer requests received therefrom, wherein:

the terminal and/or the processing means is operable to output for communication directly or indirectly to the transferor, an identifier code allocated to the money transfer; and

the processing means is operable to output money transfer instructions to be supplied directly or indirectly to a money handling authority as instructions to effect the transfer for collection, the instructions including only a first portion of the identifier code, whereby the money handling authority can verify a portion of the identifier code presented by the transferee.

Preferably, the terminal is operable to output the code to the transferor directly. Preferably, the terminal is operable to communicate the identifier code to or from the processing means.

Preferably, the system comprises means for receiving a full identifier code returned by the money handling authority as evidence of completion of the transfer, and means for comparing the returned identifier code with the originally allocated code for the transaction.

Preferably, the system comprises database means for storing the identifier code allocated to each transaction.

An embodiment of the invention is now described, by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 is a schematic block diagram illustrating the principles used in the embodiment;

Fig. 2 is a schematic diagram illustrating the information used in Fig. 1;

Fig. 3 is a schematic diagram illustrating generation of a UTC and a TVC;

Fig. 4 is a schematic block diagram of a remote input unit;

Fig. 5 is a schematic block diagram of the central server;

Fig. 6 is a flow diagram illustrating operation of the central server;

Fig. 7 is a flow diagram illustrating operation of the second embodiment of terminal;

Fig. 8 is a flow diagram illustrating information exchange between the terminal and the central server during a polling operation; and

Fig. 9 is a flow diagram illustrating operation of the server for handling information from the second embodiment of terminal.

The principles used in this embodiment are first described briefly with reference to Figs. 1 and 2. The system consists of a plurality of remote terminals 10 located, for example, in shops and/or banks within a local community. The terminals 10 communicate with a central processor, also referred to hereinafter as the server 12.

The terminals 10 may, for example, be coupled to the server 12 by conventional telephone modems which call up the server 12 to be controlled by the server 12. In this embodiment, all operations and calculations are performed by the server 12, and the terminal 10 acts as a dumb slave unit, i.e. as a remote input and display device. To improve security, the server 12 may call-back the terminal 10 at a pre-designated telephone number to ensure that third parties cannot break into the server operation.

When a new customer desires to perform a transfer, or desires to be "logged" as a customer for future transfers, this can be done at any terminal 10, which calls the server 12 to perform the process under to server's control. The customer's details including his name and address are inputted through the terminal 10 and recorded by the server 12 in a customer database 12. The local agent gives the customer a swipe card (not shown) which may be coded in any suitable manner, for example, optically, magnetically, or carry an electronic circuit. In this embodiment, the swipe card has a conventional magnetic strip on which is a pre-recorded code uniquely identifying the card. The code also doubles as a unique identification code for the customer (and is referred to later as the CIC, for customer- or card- identification code). To validate the card, the customer or the local agent is required to insert the card into the terminal so that the pre-recorded code can be read by the terminal's card reader (not shown) and communicated to the server 12 to be recorded in the customer database.

Either immediately, or at some time later, the server 12 allocates a party identification code (PIC) for the new customer. The PIC is needed later by a transferee to verify that he has been authorised by the transferor to receive the funds. In this embodiment, the PIC is generated using a random or pseudo random generator, and consists of a numeric code, for example, a four digit code, but an alphanumeric or purely alphabetic code could be used instead. The PIC is printed using a secure postal printer 16, and is posted directly to the customer 14. A significant feature is that the PIC is not communicated through the terminal 10, and so the local agent has no means of accessing a person's PIC to fraudulently intercept transfers.

To perform a transfer, the customer (transferor) 14 presents his swipe card to be inserted into the terminal's card reader. This initiates communication between the terminal 10 and the server 12 so that the transfer details can be inputted to the server 12. The transfer details include the name and address of the transferee, the amount to be transferred, and the name and address of the bank or other money handling authority at which the transferee will collect the transferred funds. The latter information can be selected from a list or menu of allowable collection authorities for any particular country or town.

The server 12 calculates the amount required to be paid by the transferor, which the transferor pays to the local agent. The server 12 then allocates a transaction identification code for the transfer, in the form of a unique transaction code (UTC). In this embodiment, the UTC is based on a pseudo-random code, which is tested to ensure that it uniquely identifies the transfer (at least for the period in which the transfer is valid; the same code is available for re-use after that period). The code is numeric, but in alternative embodiments could be alphanumeric, or purely alphabetic. The server 12 communicates the UTC to the terminal 10, and a hard copy of the transfer details, including the UTC, is printed out by the terminal 10 to be given to the transferor as a receipt.

It is the transferor's responsibility to send the PIC and the UTC to the transferee 18 and to ensure that only the intended transferee receives this information. Normally this would be done by sending the PIC and the UTC by separate routes (depicted as 20a and 20b in Fig. 1), for example, by separate letters, or by communicating one by letter and the other by telephone or telex. The UTC and the PIC together provide the transferee with all of the information needed to validate the transaction, and collect the transferred funds.

To effect the transfer, the server 12 communicates a transfer request 22 directly or indirectly (for example through a remote terminal) to a computer 24 of a domestic bank (assuming that the transfer system is being run by an independent organisation using the bank as an intermediary). The transfer request 22 includes the transfer details

supplied by the transferor, and also includes the PIC and a transaction verification code (TVC). The TVC is related to the UTC to enable verification of the correct UTC when presented by the transferee, but the TVC does not itself contain sufficient information to enable the original UTC to be deduced if it is not known. The bank computer 22 processes the transfer request and communicates the transfer information 26, by conventional bank transfer services, for example by telex, or by SWIFT, to the foreign bank 28 nominated by the original instructions from the transferor 14. The transfer information 26 supplied to the foreign bank includes the PIC and the truncated TVC.

In order to collect the transferred funds, the transferee 18 visits the foreign bank 28 and presents the PIC and full UTC. The PIC provides evidence that the person has been authorised by the transferor to receive funds, and the full UTC provides the necessary authorisation to complete the transaction. The staff at the foreign bank 28 are able to compare transferee's UTC with the TVC with which they have been supplied to verify that the full UTC matches the TVC. The foreign bank 28 then returns the full UTC to the domestic home bank 24 as evidence that the transfer has been properly completed, and that the correct recipient has been paid.

Such a system offers important advantages over conventional techniques:

(a) The transferee does not require any form of personal identification, such as a passport, or a driving licence.

(b) The only parties in possession of all of the necessary information validly to complete a transaction are the transferor, and the transferee. The agents at the point of sale (10) do not have access to the PIC, since this is allocated directly by the server 12, and is communicated to the transferor by post. The staff at the domestic home bank 24 and at the foreign bank 28 have access to the PIC, but do not have access to the full UTC. This will obstruct any fraudulent activity by the handling authorities or agents.

(c) It is the responsibility of the transferor to transmit the PIC and the full UTC to the transferee in a secure manner. If this information is intercepted and the funds are collected fraudulently by a third party, then neither the money handling authorities, nor the money transfer organisation, has to accept liability.

For subsequent transfers from the same transferor 14, the original PIC is reused. The server 12 maintains a database of transferors and the PIC allocated to each. New PIC's are only allocated, printed and posted for new transferors, or if a transferor believes his PIC to have been compromised.

In general, a transferor will only have to notify his PIC to a transferee once. Once the transferee knows the PIC, all he needs to receive funds is the new UTC associated with each individual transaction. This further reduces the chances of information being intercepted between the transferor 14 and the transferee 18.

There are numerous techniques for generating a TVC which relates verifiably to the UTC but does not prejudice the security of the UTC. For example, one technique is to truncate, or blank, one or more digits or characters from the UTC, leaving a code which partly matches the full UTC. The security can be improved by varying the number and/or the positions of the blanked characters, so that a person will not be able to predict which of the characters of the code are already known in the TVC.

Another technique for generating a TVC is generate one or more checksum digits or characters. These can either be included in the UTC, or they can be included only in the TVC. The security can be improved by varying the number and/or the positions of the characters or digits on which the checksum is based, so that a person will not be able to predict which characters represent, or contribute to, the checksum.

In a particularly preferred embodiment, the TVC is generated by a combination of the above two techniques. Referring to Fig 3, the UTC can consist of a 7, 8, 9 or 10 digit code, for example the code illustrated in Fig. 3a. This is based on a pseudo-random number, but tailored such that the sum of the first four digits A is represented somewhere in the last four digits, namely in the first one or two digits B of the last four, or the middle one or two digits C of the last four, or the last digit or digits D. In the illustrated code, the sum (i.e. 8+4+5+9=26) is represented in the middle two digits C of the last four.

Fig. 3b illustrates a first TVC which may be generated from the UTC. The TVC includes some of the original digits, the missing digits being replaced by "blank"

characters. The TVC also includes a prefix code "F", "M" or "L" to indicate whether the sum is to be found in the First, Middle or Last digits of the last four digits. In the present example, the sum is in the middle digits C of the last four, and this is denoted in the TVC by prefix "M". It will be appreciated that the prefix code is only included in the TVC, and not in the UTC.

When the UTC is presented for verification, the local bank can check firstly whether the digits in the UTC agree with the digits already known in the TVC, and secondly, whether the appropriate checksum digits denoted by the TVC's prefix correspond to the sum of the first four digits.

Fig. 3c illustrates a second TVC which may be generated for the same UTC. The prefix code is, of course, the same as that for Fig. 3b, but this example illustrates that a person cannot predict which digits are known in the TVC, since this can vary.

The above scheme represents a balance between security and ease of verification at a remote bank. Other schemes may be used which require computer verification, but this could restrict the banks at which the transferee is able to collect the funds.

Referring to Fig. 4, the remote unit 10 comprises a main processor 30 to which are connected a display screen 32, a keyboard 34, a swipe card reader 38, a receipt printer 40, a customer/transaction logger 41, and a telephone communications modem 44 coupled through an encryption/decryption unit 46 for communicating with the server 12. The display screen may, for example, be a video display unit, or it may be an alphanumeric display, for example, an LCD display. The display is used to present messages and prompts to the customer (transferor) and/or the local agent supervising the remote terminal 10, in response to instructions from the server 12. The details of the transaction and, if the customer is a new customer, the customer's details, are entered using the keyboard 34.

The logger 41 provides a summary of information inputted through the terminal 10 during a working day, so that end-of-day information can be generated and checked by the server 12.

The logger 41 and the encryption/decryption unit 46 are illustrated above as discrete units for ease of description. However, it will be appreciated that these units may be embodied by software running on the main processor 30.

Referring to Fig. 5, the server 12 consists generally of a central processor unit 90 to which are connected a customer database 92, a transaction database 94, a reference database 96, a PIC generator 98, a UTC/TVC generator 100, a secure postal printer 102, an output system 104 (for passing transfer instructions to a bank computer), an input cache 106, and a telephone modem 108 connected through an encryption/decryption unit 110 (which is similar to the encryption/decryption unit 46 described above for the remote terminal 10).

The customer database 92 is a master database of all customers (transferors) who have used the system at any time. For each customer, the database also includes full name and address information, at least limited transaction history, and the customer's PIC and CIC. The transaction database 94 is a master database of the transactions. This includes all pending transactions, and possibly at least a limited history of completed transactions. The information in the transaction database 94 may be archived from time to time to make more memory available for new transactions. The reference database 96 is a master database of the current reference information required for the transactions, including, for example, the countries to which transfers can be sent, available recipient bank details for each country, currency exchange rates and commission rates.

The secure postal printer 102 is of a known type which is able to produce sealed envelopes containing a printed sheet, it being possible to read the sheet only by breaking open the sealed envelope. Such printers are used in applications where it is desired to print information securely to send to a recipient, while ensuring that local staff are unable to read the contents of the envelope.

Fig. 6 illustrates the operation of the server 12 once communication has been established between a terminal 10 and the server 12. Step 122 determines whether the information from the terminal 10 corresponds to a new or existing customer. This is

apparent if the information contains an existing customer identification code CIC. Assuming as a first case that the information does correspond to a new customer, then the process proceeds to step 123 at which the server 12 controls the terminal to prompt for, and return, inputted customer information, including the customer's full name and address. At step 124 a new customer entry is created in the customer database 92.

From step 124, the process proceeds to step 125 at which the server 12 controls the terminal to prompt for a new swipe card to be introduced into the terminal's card reader 38. As explained hereinbefore, the swipe card carries a pre-recorded CIC, which is read by the terminal 10 and returned to the server 12. At step 126, the read CIC is recorded in the customer database. This completes the introduction of a new customer at the terminal 10. The customer can then use the swipe card to initiate a transfer.

At step 127, a PIC is generated for the new customer by the PIC generator 98. As explained previously, the PIC is used later by the recipient to identify himself at his local bank to collect the transferred funds. A separate PIC is generated for each customer. In the present embodiment, the PIC is produced as a random or pseudo-random 4-digit number, so that it is impossible to derive any relationship between the PIC and the customer's details (which might otherwise enable PIC's to be predicted by fraudulent parties). However, in other embodiments, the PIC could be the result of a checksum or hashing function carried out on the customer's name or address, so that it is possible to verify whether given PIC matches given party's name. Alternatively, it is possible to generate a pseudo random PIC using an encryption algorithm which is virtually impossible to reverse or to predict, but which retains a verifiable relationship with the parties names. However, in the present embodiment, it is assumed that it may be difficult to arrange for verification of the PIC by the recipient's bank, and so it is preferred to utilise a completely random PIC.

At step 128, the PIC is recorded in the customer database. The PIC is also printed in a sealed envelope by the secure printer 102, and the envelope is addressed and posted to the customer at his home address identified in the customer information

received from the remote terminal 10 (and now stored in the customer database 92 of the server 12).

It will be appreciated that steps 127 and 128 can be carried out either immediately after communication with the terminal 10, or at some subsequent time when the server 12 may be less busy.

If at step 122 the received information contains an existing CIC (and therefore corresponds to an existing customer, the process proceeds to step 130 at which the customer's PIC is retrieved from the customer database. At step 132, the transfer is analysed to assess whether it is a suspicious transfer which should be stopped for legal reasons. Suspicious transfers may, for example, be detected as any of the following:

(i) transfers greater than a certain allowable amount (which may vary depending on the destination country);

(ii) repeated transfers which accumulate to a sum greater than an allowable amount over a predetermined period (the amount may vary depending on the destination country);

(iii) repeated transfers the frequency of which exceeds an allowable figure (which may very depending on the destination country).

The purpose of step 132 is to provide at least a degree of protection to prevent large scale money laundering or illegal funds transfer from one country to another. If a suspicious transfer is detected, then the transfer process can be aborted, or the server 12 can prompt the terminal 10 that proof of identification is required before the transfer can proceed. Details of the proof of identification (e.g. a passport number) can be entered at the terminal 10 for communication back to the server 12.

At step 134, a check is performed on whether the customer's payment has yet cleared. If cash is used to pay for the transfer, then this step can be omitted. However, if payment has been made by cheque, then no transfer should be authorised until the cheque has been cleared by the customer's bank. If the payment has not yet cleared, then the data is re-stored (for example, in the input cache 106 or in a separate pending store) to be re-processed during the next day's processing.

At step 135, the UTC and the TVC for the transfer are provided. These could either be generated "live", for example, by suitable algorithms, or the UTC and the TVC could be obtained from a supply of pre-generated codes. Such codes could be pre-generated when the server 12 is not busy, for example, overnight, and stored in suitable memory.

At step 136, the UTC is communicated from the server 12 to the terminal 10 to be printed by the terminal's printer 40. This provides the customer (transferor) with the UTC to send to the transferee.

At step 137, the transfer details are issued as a transfer instruction to the intermediary bank. The transfer instructions include the transfer details originally inputted by the customer, the PIC, and the TVC (including the prefix code "F", "M" or "L").

At step 138, the transaction details are stored in the transaction database 94 as a pending transaction, which completes the initial transaction processing. Although not illustrated in the drawings, additional processing can be provided when the foreign bank returns the full UTC as evidence that the transaction has been completed. The returned UTC can be compared to the UTC recorded in the transaction database to verify that the transaction has been completed correctly. Alternatively, this verification step might only be necessary if a transferor complains of non-delivery of funds to the transferee, or of collection by an unauthorised person.

In Fig. 5, the encryption/decryption unit 110, the input cache 106, the PIC generator 98, the UTC generator 100, the TVC generator 101, and the databases 92, 94 and 96 are illustrated as separate "items" from the server processor 90. This is merely to aid description of the invention. It will be appreciated that these functional parts may be implemented by software applications running on the processor.

Although not illustrated in the drawings, it may also be possible for a customer to place a telephone order to a telephone receptionist, who would then enter the transfer details using a dedicated terminal, or directly on to the server 12. The UTC could be issued to the telephone transferor either by telephone, or by means of the secure postal

printer 102. In the latter case, it is preferred that the UTC be printed and posted separately from any communication of a new PIC, to reduce the chances of these items of information being intercepted together.

The above embodiment employs "online" operation of the terminals 10 under the direct control of the server 12. All of the information processing is carried out by the server 12. This can enable relatively inexpensive and straightforward terminals to be used, and it can also enable updated information to be available immediately simply by changing the information and/or the programs on the server.

In an alternative embodiment, it may be desirable to provide at least some of the terminals with a degree of autonomy, for offline operation. Referring to Fig. 4, the terminal 10 is similar to that previously described, but includes the following units (shown in phantom): a UTC/TVC generator 48; a reference database 36; and a customer/transaction database 42. The reference database 36 provides reference information for the remote terminal, such as details of the individual countries to which transfers can be sent, and the individual banks in each country, the exchange and commission rates for each country, and the likely transfer delay for each country (if a calculation of the expected arrival date of the funds is to be provided). The reference database may also include details of public holidays in each country, and the allowable methods of payment by the customer (for example, cash, cheque, credit card, e-cash, mondex, etc.) and the clearance delay for each type of payment (if the calculation of the expected arrival date of the funds is to be provided). The information in the reference database can be updated periodically by the server 12, for example, at the start of a day, or during routine polling of the terminal 10 by the server, as described further below.

The customer/transaction database 46 is used to store details of transfer requests, and details of any new customers, until the information can be uploaded to the server 12 for action.

Referring to Fig. 7, before a new customer can use the transfer system, the customer's details have to be entered into the terminal using the keyboard (step 50).

The customer details include the customer's name and address (or other contact details), so that the secure PIC can be sent later to the customer by the server 12. The customer details are then stored in the customer/transaction database 42 (step 52). Thereafter, the customer is issued with a swipe card (step 54) which carries a unique customer identification code (CIC), as explained previously.

At step 56, the customer (or the local agent) enters details of the desired transfer. Such details include the name and address of the recipient (transferee), the amount to be transferred (in the local currency of the customer), the method of payment by the customer, and the destination country, name and address of the bank or other money handling agent at which the recipient will collect the transferred funds.

At step 58, the processor 30 calculates and displays the value of the funds in the recipient's currency, and the amount of commission charged, based on the information stored in the reference database 36. If desired, the processor may also calculate an estimated date of arrival of the transferred funds at the destination bank, using information in the reference database, and the following formula:

Arrival date = today's date + funds clearance delay + transfer delay + calendar (holiday) delay

If the customer agrees to the transaction and makes payment to the agent, then this is confirmed at step 60. (If the customer declines to proceed, then the process can be aborted at this step.) Thereafter, at step 61 the UTC and TVC for the transfer are provided/generated by the UTC/TVC generator 48. The UTC and TVC can either being generated "live", or a pre-generated UTC and TVC can be retrieved. Such UTC's and TVC's may either be generated by local generators within the terminal, or they may be downloaded from the server 12 as part of the update information for the reference database.

At step 62, the transfer details including the allocated UTC are stored in the customer/transaction database 42 to await uploading to the server 12 for processing.

The transfer details including the UTC are also printed out (step 64) by the terminal's receipt printer 40 to provide a receipt for the customer.

The above method steps apply to a new customer. An existing customer simply inserts his or her swipe card into the terminal's card reader 38 (step 66), at which stage the customer number is read from the card. This provides sufficient information for the server 12 to access the customer's details which are stored in the server 12. After step 66, the process proceeds directly to step 56 for the customer (or agent) to enter the details of the transfer, as described above.

At various intervals during the day, the terminal 10 is polled by the server 12 by telephone, to upload money-transfer information and new customer information to the server 12, and to receive new reference information from the server 12. Referring to Fig. 8, when a telephone call is received from the server 12 (step 70) the process proceeds to step 172 at which the terminal 10 verifies that the call is from the proper server 12, for example, by means of a secret password. The terminal also returns a secret password, so that the server 12 can verify that it is communicating with the proper terminal 10. It will be appreciated that all information sent and received through the telephone line is communicated in encrypted form, so that the information cannot easily be intercepted. At the terminal end, the information is encrypted/decrypted by the encryption/decryption unit 46 connected between the processor 30 and the modem 44.

Following step 72, the terminal waits to receive any new reference information (step 74) for the reference database 36. Such new information may be in the form of a replacement "reference" file to overwrite the entire existing contents of the reference database 36, or it may be in the form of update "packets" to replace only certain information in the reference database. The new information (if any) is then written into the database.

At step 78, the terminal transmits the new contents of the customer/transaction database 42 to the server 12. This new information includes details of any new

customers (including the customer identification number for each new customer), and details of transfer requests entered by the customers.

Step 80 determines whether the terminal has closed at the end of the day and, if so, the process proceeds to step 82 at which end-of-day (EOD) information is transmitted to the server 12. The EOD information includes totals representing the day's transactions and new customers, to provide a cross-check that all of the terminal's information has been validly received by the server 12. This is subsequently cross-checked by the server 12. If the terminal has not yet closed at the end of the day, then the process branches past step 82, to step 84 at which the communication is terminated.

The server 12 will normally poll each terminal 10 at several different times during the day. During each communication session, the terminal transmits only the new information contained in the customer/transaction database 42 (i.e. the information not previously communicated to the server). In this embodiment, the information remains in the customer/transaction database 42 until after the server 12 verifies, for example, by means of the EOD information, that all of the information has been uploaded correctly to the server 12. Such a technique enables all of the information to be uploaded to the server again if necessary, for example, should any discrepancies arise from the EOD information. However, in other embodiments, the customer/transaction database 42 could be cleared after each communication session with the server 12, if desired.

In Fig. 4, the reference database 36, the customer/transaction database 42, the encryption/decryption unit 46 and the UTC/TVC generator 48 have been illustrated as distinct "items" from the processor unit 30. This presentation is merely schematic to aid description of the invention. It will be appreciated that such items may be implemented as application software run by the processor unit. The reference information and the customer/transaction information may be stored as files on conventional mass storage, for example, a semiconductor mass memory or a magnetic disc.

In use, the server 12 polls each remote terminal 10 to download updated reference information to the terminal 10, and to upload new transfer-request information and new-customer information from the terminal. The communication procedure is complementary to that described above with reference to Fig. 8, and so is not expanded further here. The uploaded information is stored temporarily in the input cache 106 until it can be processed by the processing unit 90.

Fig. 10 illustrates the manner in which each "packet" of information from the input cache 106 is processed. Where appropriate the same reference numerals as those in Fig. 6 are used to denote an equivalent operation step. The information is firstly read from the cache 106 at step 120 and, as before, step 122 determines whether the information corresponds to a new customer. Assuming as a first case that the information does correspond to a new customer, then the process proceeds to step 124 at which a new customer entry is created in the customer database 92, containing the CIC read from the input cache.

From step 124, the process proceeds to step 127 at which a PIC is generated for the customer.

At step 128, the PIC is printed in a sealed envelope by the secure printer 102, and the envelope is addressed and posted to the customer at his home address identified in the customer information received from the remote terminal 10 (and now stored in the customer database 92 of the server 12). The PIC is also stored in the customer database 92.

Step 132 represents the first step for processing the transfer after the customer and recipient details have been stored. At step 132, the transfer is analysed to assess whether it is a suspicious transfer which should be stopped for legal reasons, as explained in more detail hereinbefore.

At step 134, a check is performed on whether the customer's payment has yet cleared. Assuming that the payment has cleared, the process proceeds to step 136 at which the transfer details are issued as a transfer instruction to the intermediary bank.

The transfer instructions include the transfer details originally inputted by the customer, the PIC, and the TVC received from he terminal 10.

At step 138, the transaction details are stored in the transaction database 94 as a pending transaction, which completes the initial transaction processing.

If at step 122, the information corresponds to an existing customer, the process proceeds to through step 142 at which the existing PIC for the customer is read from the customer database for re-use. The process then proceeds through step 132 for processing of the transfer details, as described above.

In the above embodiment, the UTC and TVC are allocated to the transaction at the point of sale terminal 10, to provide offline operation of the terminal 10. Although in the illustrated embodiment, the TVC is allocated at the terminal, this could instead be allocated by the server 12, to reduce the risk that the TVC might be available by tapping into the terminal somehow.

In the above embodiments, the PIC is associated only with the transferor. In an alternative form, the PIC could be associated instead with each transferor/transferee pair. Thus instead of a transferor having a single PIC, the transferor would have different PIC's for his different transferees. This could provide additional security if needed, but might require the transferor to remember possibly a large number of PIC's. The customer database would also need to store all of the PIC's for each transferor, and be able to identify subsequent transactions between the same transferor and transferee, in order to use the correct PIC.

In the above embodiments, swipe card is pre-programmed with its CIC, and this is the only information required to be read by the terminal. In other embodiments, the terminal might be equipped with a card reader/writer for writing information to the card as well as reading it from the card. This could enable "favourite recipient" data to be stored on the swipe card in order to simplify the operation for the transferor.

It will be appreciated that the invention, particularly as illustrated in the preferred embodiments, can enable funds to be transferred in a logical and secure, manner, which allows a recipient to receive the funds without having to have official

proof of identity (such as a passport). Only the transferor and the intended transferee have access to sufficient information to complete the transfer, and it is the transferor's responsibility to ensure that the information is sent in a secure manner to the transferee. Neither the local handling agent for the transferor, nor the local handling agent for the transferee, have direct access to sufficient information to complete a valid transfer.

While features believed to be of importance have been identified in the foregoing description, and in the appended claims, the applicant claims protection for any novel idea, feature or combination of features described herein and/or illustrated in the drawings irrespective of whether emphasis has been placed thereon.

CLAIMS

1. A method of handling money transfer requests in a system which includes at least one input device for receiving information directly or indirectly from a transferor, and processing means for communicating with the input device for processing money transfer requests therefrom, the method comprising:

receiving at the processing means a money transfer request from the input device;

providing within the processing means a first identifier code for the transfer and/or for at least one of the parties to the transfer;

sending the first identifier code directly or indirectly to the transferor if the first identifier code is a new code, the sending operation to the transferor being an independent operation from the communication with the input device;

outputting money transfer instructions including at least a portion of the first identifier code or information related thereto; and

communicating the money transfer instructions to a money handling authority as instructions to effect the money transfer, whereby the authority of the transferee party to receive the funds can be verified upon presentation of the first identifier code by the transferee party.

2. A method of operation in processing means for processing money transfer requests, the method comprising:

receiving at the processing means information representing a money transfer request;

providing within the processing means a first identifier code associated with the transfer and/or with at least one or the parties to the transfer;

sending the first identifier code directly or indirectly to the transferor if the first identifier code is a new code;

outputting money transfer instructions including at least a portion of the first identifier code or information related thereto; and

communicating the money transfer instructions to a money handling authority as instructions to effect the money transfer, whereby the authority of the transferee party to receive the funds can be verified upon presentation of the first identifier code by the transferee party.

3. A method of communicating information with a transferor for a money transfer operation to transfer money to a transferee, the method comprising:

(a) receiving transfer instruction information directly or indirectly from the transferor;

(b) providing a first identifier code associated with the transfer and/or with at least one of the parties to the transfer, the code being required by the transferee to complete the money transfer operation;

(c) outputting or selectively outputting the first identifier code for communication to the transferor;

wherein in step (c) the first identifier code is outputted for confidential communication to the transferor independently of the communication in step (a).

4. A method according to claim 3, wherein step (c) comprises selectively outputting the first identifier code if the code is newly allocated.

5. A method according to claim 1, 2, 3 or 4, wherein the step of providing the first identifier code comprises selectively allocating a new identifier code, or re-using a previously allocated identifier code.

6. A method according to claim 5, wherein the party identifier code is associated with the transferor.

7. A method according to claim 6, wherein the processing means comprises a database of transferors, the database containing for each transferor the or a party identification code associated therewith.

8. A method according to any preceding claim, wherein the step of allocating a new first identifier code comprises generating a random or pseudo random code.

9. A method according to any preceding claim, further comprising generating a second identifier code associated with the transaction, and outputting the second identifier code to the transferor, and wherein the step of generating the money transfer instructions at the processing means comprises including a verification code related to the second identifier code to enable the correct second identification code to be verified when presented by the transferee.

10. A method according to claim 9, wherein the second identifier code is outputted to the transferor at the or a remote terminal.

11. A method of handling money transfer requests in a system which includes processing means for processing money transfer requests, the method comprising:

generating an identifier code associated with a transfer request;

outputting the identifier code for communication to the transferor;

outputting from the processing means money transfer instructions including a verification code related verifiably to the identifier code;

communicating the money transfer instructions to a money handling authority as instructions to effect the money transfer, whereby the authority of the transferee party to receive the funds can be verified at least partly upon presentation of the original identifier code matching the incomplete code in the money transfer instructions.

12. A method according to claim 11, wherein the identifier code is based on a random or pseudo random code.

13. A method according to claim 11 or 12, wherein the money transfer request is generated at a terminal remote from the processing means, and the identifier code is outputted at the terminal for the transferor.

14. A method of operation in a processing means for processing money transfer requests, the method comprising:

receiving at the processing means information representing a money transfer request;

providing an identifier code;

providing a verification code related verifiably to the identifier code, the verification code being insufficient to enable the identifier code to be deduced unambiguously therefrom; and

outputting from the processing means money transfer instructions including the transaction verification code, for communication to a money handling authority as instructions to effect the money transfer, whereby the authority of the transferee party to receive funds can be verified at least partly upon presentation of the original identifier code matching the verification code in the money transfer instructions.

15. A method according to claim 11, 12, 13, 14 or 15, wherein the identifier code is generated such that at least one character thereof represents a function of one or more other characters of the identifier code, and the step of providing the verification code comprises generating a code comprising at least one, but not all, of the characters of the identifier code and including information indicative of the position in said identifier code of said at least one character and/or of said one or more other characters.

16. A method according to claim 15, wherein the characters in the identifier code are numeric.

17. A method according to claim 15 or 16, wherein the function is a sum function.

18. A method according to claim 15, 16 or 17, wherein the verification code comprises one or more blank characters representing missing character or digit positions of the identifier code.

19. A method according to claim 15, 16 or 17, wherein the function is based on characters in one or more predetermined positions in the identifier code, and said information represents the position in said identification code of the result of the function.

20. A method according to any preceding claim, further comprising storing the or each identifier code at the processing means.

21. A money transfer system comprising:

at least one input unit operable to generate a money transfer request in accordance with information from a transferor; and

processing means for communicating with the or each input unit for receiving and processing money transfer requests therefrom, the processing means comprising:

means for providing a fist identifier code for the transaction and/or for the one or more parties to the transfer;

means operable to output first information including the first identifier code, to be communicated directly or indirectly to the transferor independently of the communication operation with the input unit; and

means for outputting money transfer instructions including at least a portion of the first identifier code or information related thereto, for communication to a money

handling authority as instructions to effect the money transfer, whereby the authority of a transferee party to receive the funds can be verified at least partly by presentation of the first identifier code by the transferee party.

22. A system according to claim 21, comprising at least one remote input unit.

23. A processing system for use in a money transfer system for processing money transfer requests, the processing system comprising:

means for receiving information representing a money transfer request;

means for providing a fist identifier code associated with the transaction and/or with one or more parties to the transfer;

means operable to output first information including the first identifier code, to be communicated directly or indirectly to the transferor;

means for outputting money transfer instructions including at least a portion of the first identifier code or information related thereto, for communication to a money handling authority as instructions to effect the money transfer, whereby the authority of a transferee party to receive the funds can be verified at least partly by presentation of the first identifier code by the transferee party.

24. A system for communicating information with a transferor for a money transfer operation to transfer money to a transferee, the system comprising:

means for receiving transfer instruction information directly or indirectly from the transferor;

means for providing a first identifier code associated with the transfer and/or with at least one of the parties to the transfer, the code being required by the transferee to complete the money transfer operation; and

means for outputting the first identifier code for confidential communication to the transferor.

25. A system according to claim 24, wherein the means for outputting information for the transferor comprises means for selectively outputting the first identifier code if the code is newly allocated.

26. A system according to claim 21, 22, 23, 24 or 25, wherein the means for providing the first identifier code comprises means for selectively allocating a new identifier code, or re-using a previously allocated identifier code.

27. A system according to claim 26, wherein the first identifier code comprises a party identification code associated with the transferor.

28. A system according to claim 27, wherein the processing means comprises a database of transferors, the database containing for each transferor the or a party identification code allocated thereto.

29. A system according to any of claims 21 to 28, wherein the means for allocating a new first identifier code comprises means for generating a code based on a random or pseudo random code.

30. A system according to any of claims 21 to 31, further comprising means for generating a second identifier code associated with the transaction, and outputting the second identifier code to the transferor, and wherein the means for generating the money transfer instructions at the processing means comprises means for including a verification code related to the second identifier code to enable the correct identifier code to be verified when presented by a transferee.

31. A system according to claim 32, wherein the second identifier code is outputted to the transferor at the or a remote terminal.

32. A system for handling money transfer requests, comprising:

at least one input device for receiving transfer request information directly or indirectly from a transferor,

means for allocating an identifier code associated with the transfer request;

means for outputting the identifier code for the transferor, the code being required by a transferee to complete a valid money transfer; and

means for providing a verification code related to the identifier code, the verification code being insufficient to enable the identifier code to be deduced therefrom unambiguously,

means for outputting money transfer instructions including the verification code for communication to a money handling authority, as instructions to effect the money transfer, whereby the authority of a transferee party to receive the funds can be verified at least partly upon presentation of the original identifier code matching the verification code in the money transfer instructions.

33. A system according to claim 32, wherein the identifier code is generated as, or is based on, a random or pseudo random code.

34. A system according to claim 32 or 33, wherein the input device is a remote terminal.

35. A processing system for processing money transfer requests, the system comprising:

means for receiving information representing a money transfer request;

means for allocating a transaction identifier code for communication directly or indirectly to a transferor;

means for providing a verification code related to the transaction identifier code, the verification code being insufficient to enable the identifier code to be deduced unambiguously therefrom;

means for outputting money transfer instructions including the verification code, for communication to a money handling authority as instructions to effect the money transfer, whereby the authority of the transferee party to receive funds can be verified at least partly upon presentation of the original identifier code matching the incomplete code in the money transfer instructions.

36. A terminal for receiving money transfer requests, and for communicating transfer request information to a central processor, the terminal comprising:

input means for receiving information regarding the transfer and the parties to the transfer;

means operable to allocate and/or to receive a transaction identifier code;

means for outputting the transaction identifier code for communication to the transferor;

means for storing information relating to the requested money transfer, said information including the allocated identifier code; and

means for communicating with a said central processor.

37. A terminal according to claim 36, wherein the input device comprises a card reader for reading information on a card presented thereto.

38. A terminal according to claim 37, wherein the card reader comprises a magnetic card reader.

39. A method of handling a money transfer request, comprising:

receiving transfer request information directly or indirectly from a transferor;

allocating a transaction identification code for the transfer request;

providing a party identifier code associated with one or more parties to the transaction;

communicating at least the transaction identifier code to the transferor, to be forwarded by the transferor to the transferee;

communicating money transfer instructions to a money handling authority to effect the transfer, the money transfer instructions including information relating to the transaction identifier code and information relating to the party identifier code, but at least one of the codes being incomplete such that the money transfer instructions do not contain sufficient information to complete a valid transfer;

whereby the authority of a transferee to receive the funds can be verified by the money handling authority upon presentation by the transferee of the original transaction identifier code and the original party identification code, which match the information in the money transfer instructions.

40. A method according to claim 39, wherein the step of communicating information to the transferor comprises selectively communicating the party identifier code.

41. A method according to claim 40, wherein the step of communicating information to the transferor comprises communicating the party identifier code if the party identifier code is newly allocated.

42. A method according to claim 40 or 41, wherein the step of communicating information to the transferor comprises not communicating the party identifier code if a party identification code has previously been allocated for an earlier transaction between the same parties, and is to be re-used for the current transaction.

43. A method according to any of claims 47 to 49, wherein the party identification code, if communicated to the transferor, is communicated independently of the transaction identifier code.

44. A method of testing information provided by a transferee for collection of funds, the method comprising:

receiving transfer instructions including a first party identifier code allocated to at least one of the parties to the transfer, and a second transaction verification code related to a transaction identifier code allocated to the transaction;

(a) comparing the first party identifier code from the transfer instructions with a party identifier code provided by the transferee; and

(b) comparing the second transaction verification code with a transaction identification code provided by the transferee.

45. A method according to claim 44, further comprising returning the transaction identification code to the issuing authority as evidence that the transferee is authorised to receive the funds.

46. A method according to claim 44 or 45, wherein the transaction verification code contains some, but not all of the characters of the transaction identification code, and the method comprises comparing each known character in the transaction verification code for equivalency with a corresponding character of the transaction identifier code.

47. A method according to claim 44, 45 or 46, wherein the transaction verification code includes information associated with the result of a function based on one or more characters of the transaction identification code, and the method comprises testing whether the transaction identification code presented by the transferee matches the function.

48. A method or apparatus for handling money transfer requests, being substantially as hereinbefore described with reference to any of the accompanying drawings.

ABSTRACT

METHOD AND APPARATUS FOR MONEY TRANSFERS (Fig. 1)

A money transfer system comprises remote terminals (10) for receiving transfer request information from a transferor (14). If the transferor is a new customer, a central server (12) generates a new party identifier code (PIC) using a secure postal printer (16), to send the PIC to the transferor independently of the communication with the terminal (10). The PIC will be re-used for subsequent transfers from the transferor. For each transaction, the server (12) allocates a unique transaction code (UTC) which is outputted to the transferor at the terminal (10). The server also generates money transfer instructions (22) communicated to the remote money handling authorities (28). The instructions include the existing or newly allocated PIC, verification code (TVC) related to the UTC, but insufficient to enable the UTC to be deduced therefrom. It is the transferor's responsibility to communicate the UTC and the PIC to the transferee (18), preferably by separate routes for security. If the parties have taken place in a previous transfer, then the transferee will already know the PIC from the previous transfer. The transferee can pick up the money from the bank upon presentation of the correct PIC and PIN matching the information in the money transfer instructions.

1/8

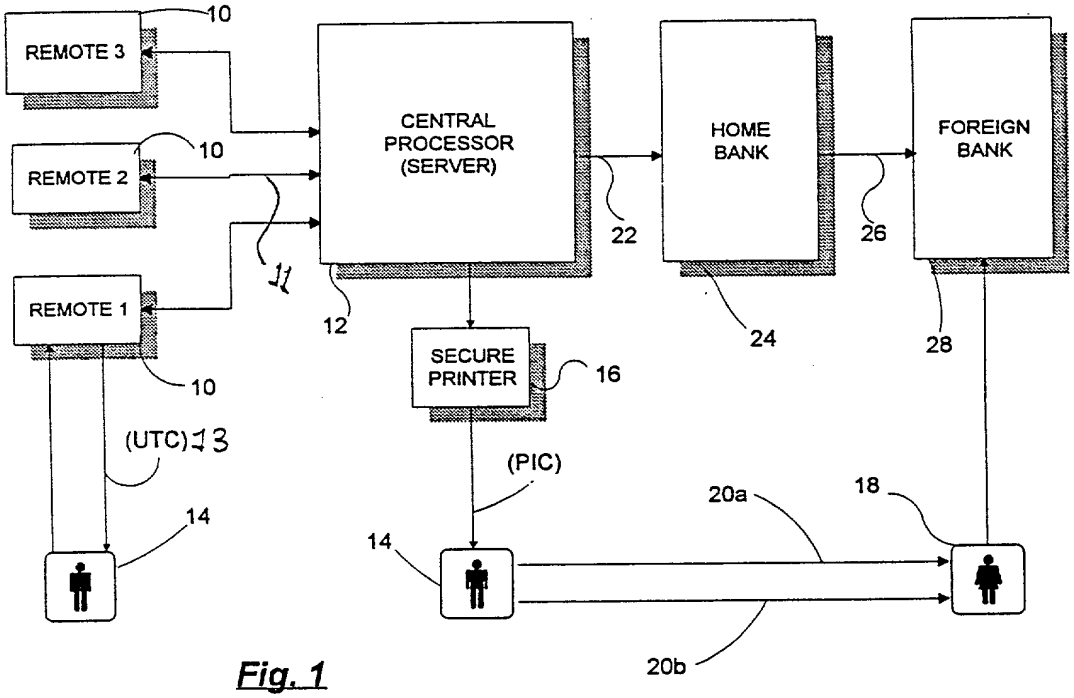
REMOTE 3
REMOTE 2
REMOTE 1
10
10
10
11
CENTRAL PROCESSOR (SERVER)
12
22
HOME BANK
24
26
FOREIGN BANK
28
SECURE PRINTER
16
(UTC)13
(PIC)
14
14
20a
18
20b

Fig. 1

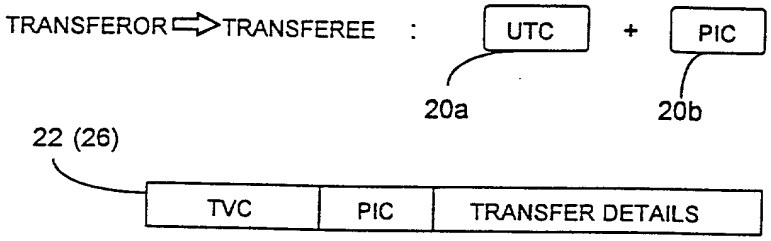

Fig. 2

	8	4	5	9	4	5	2	6	2
			A			B	C		D
M	8	4	?	?	?	?	?	6	2
M	8	?	?	9	4	?	?	6	2

Fig. 3(a)

Fig. 3(b)

Fig. 3(c)

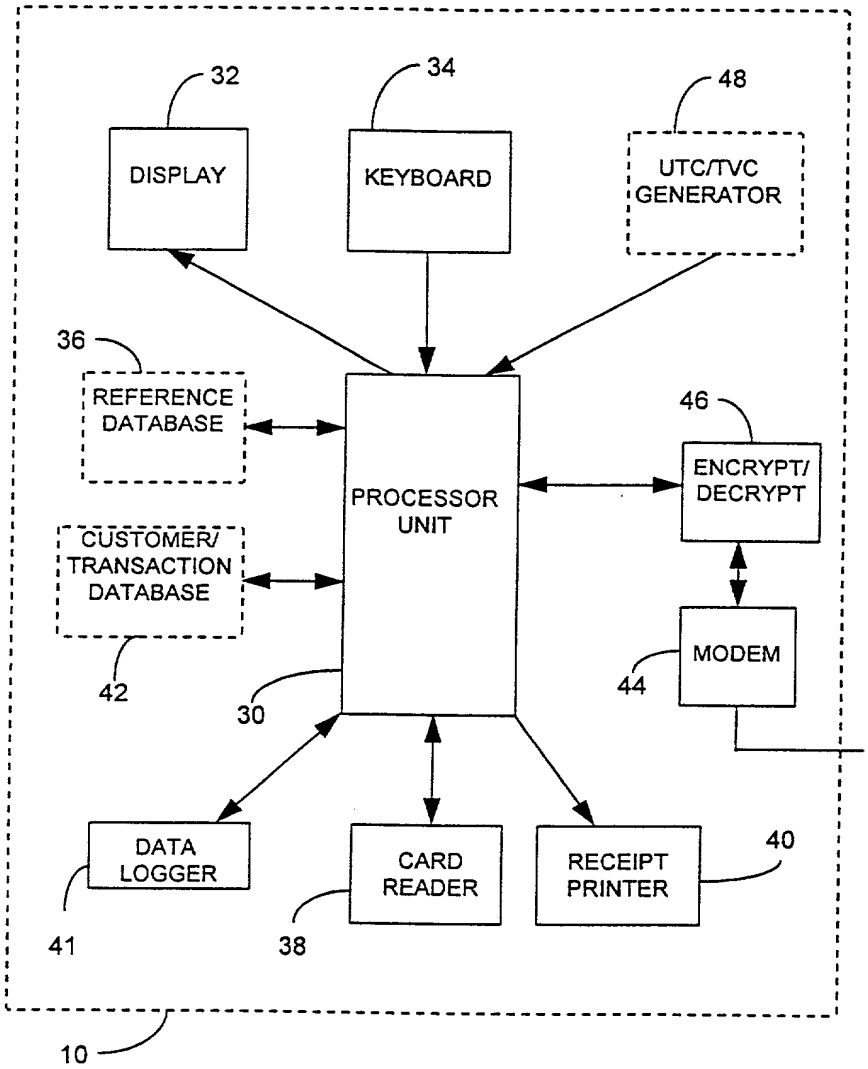
32
34
48
DISPLAY
KEYBOARD
UTC/TVC GENERATOR
36
REFERENCE DATABASE
PROCESSOR UNIT
46
ENCRYPT/ DECRYPT
CUSTOMER/ TRANSACTION DATABASE
MODEM
42
30
44
DATA LOGGER
CARD READER
RECEIPT PRINTER
40
41
38
10

Fig. 4

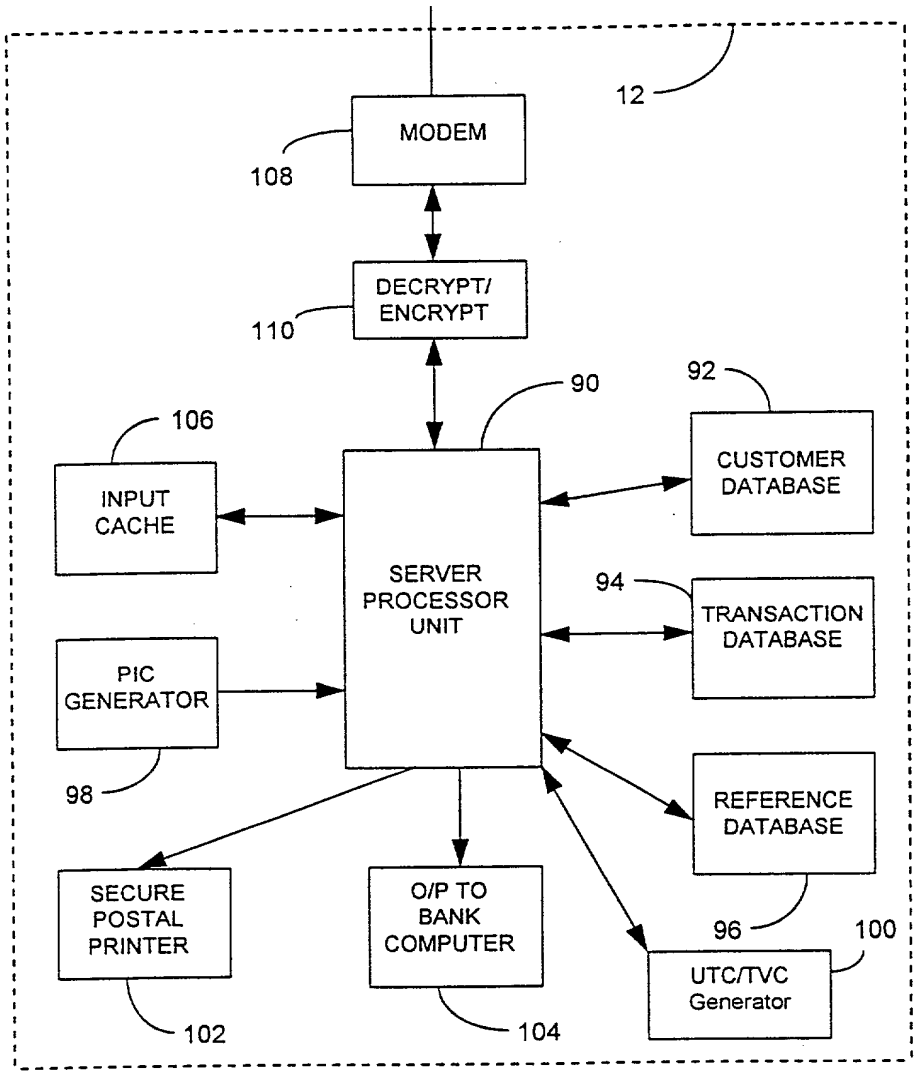
12
MODEM
108
DECRYPT/
ENCRYPT
110
90
92
106
INPUT
CACHE
SERVER
PROCESSOR
UNIT
CUSTOMER
DATABASE
94
TRANSACTION
DATABASE
PIC
GENERATOR
98
REFERENCE
DATABASE
SECURE
POSTAL
PRINTER
O/P TO
BANK
COMPUTER
96
100
UTC/TVC
Generator
102
104

Fig. 5

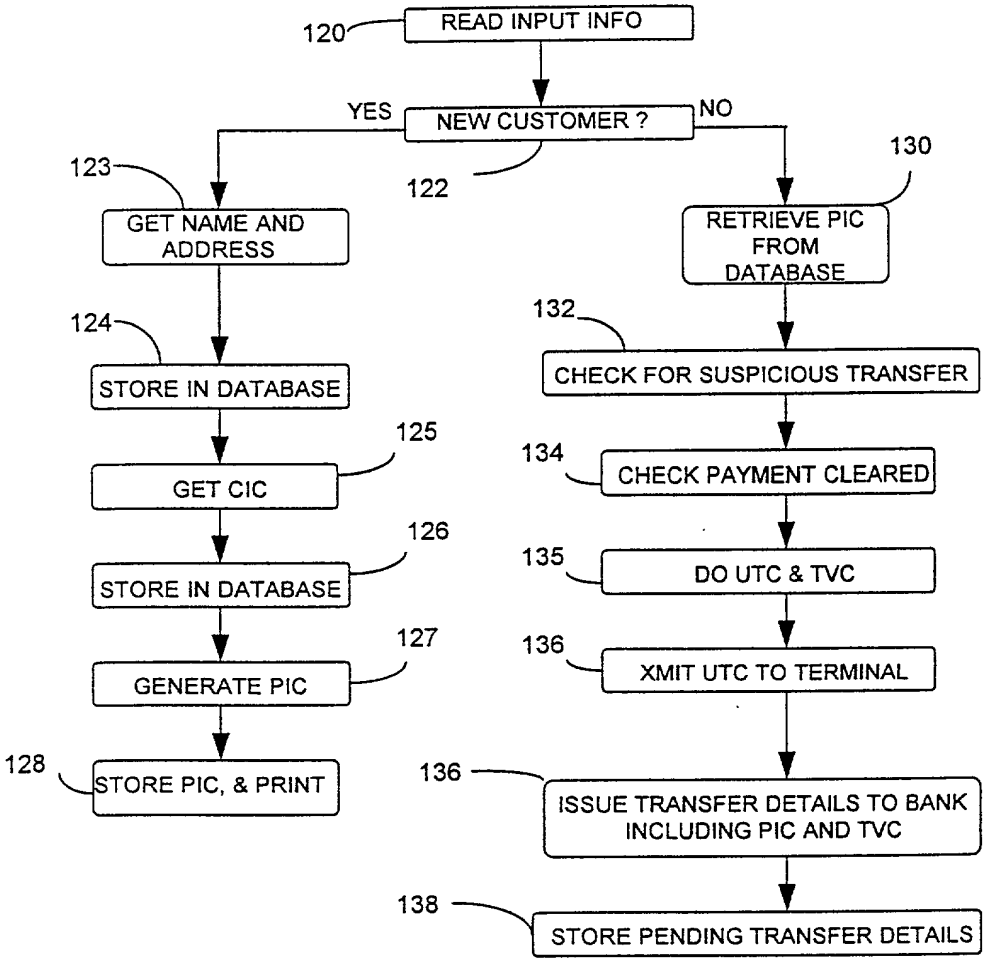
120
READ INPUT INFO
YES
NEW CUSTOMER ?
NO
122
123
GET NAME AND ADDRESS
124
STORE IN DATABASE
125
GET CIC
126
STORE IN DATABASE
127
GENERATE PIC
128
STORE PIC, & PRINT
130
RETRIEVE PIC FROM DATABASE
132
CHECK FOR SUSPICIOUS TRANSFER
134
CHECK PAYMENT CLEARED
135
DO UTC & TVC
136
XMIT UTC TO TERMINAL
136
ISSUE TRANSFER DETAILS TO BANK INCLUDING PIC AND TVC
138
STORE PENDING TRANSFER DETAILS

Fig. 6

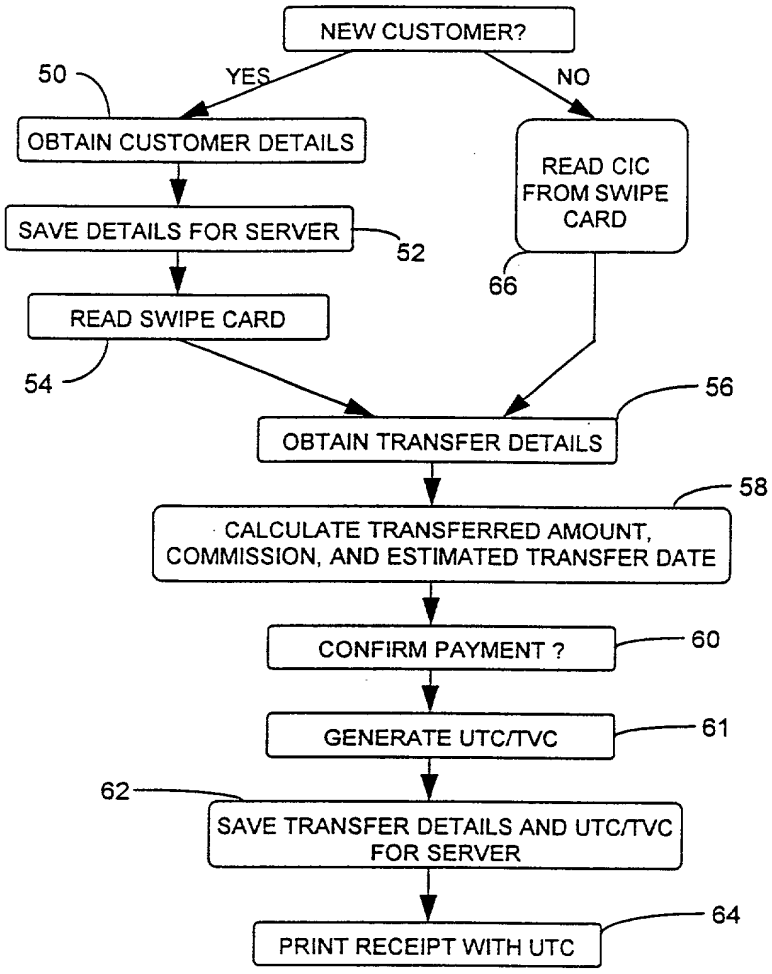
NEW CUSTOMER?
YES
NO
50
OBTAIN CUSTOMER DETAILS
SAVE DETAILS FOR SERVER
52
READ SWIPE CARD
54
READ CIC FROM SWIPE CARD
66
OBTAIN TRANSFER DETAILS
56
CALCULATE TRANSFERRED AMOUNT, COMMISSION, AND ESTIMATED TRANSFER DATE
58
CONFIRM PAYMENT ?
60
GENERATE UTC/TVC
61
62
SAVE TRANSFER DETAILS AND UTC/TVC FOR SERVER
PRINT RECEIPT WITH UTC
64

Fig. 7

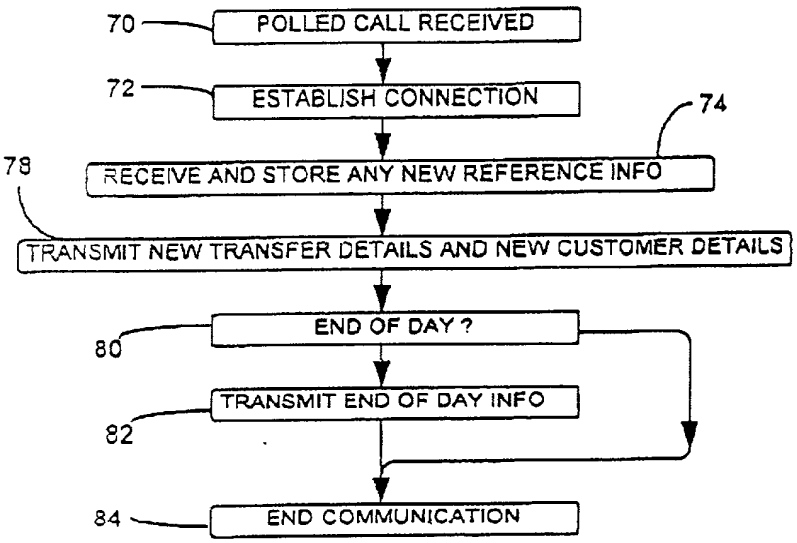

Fig. 8

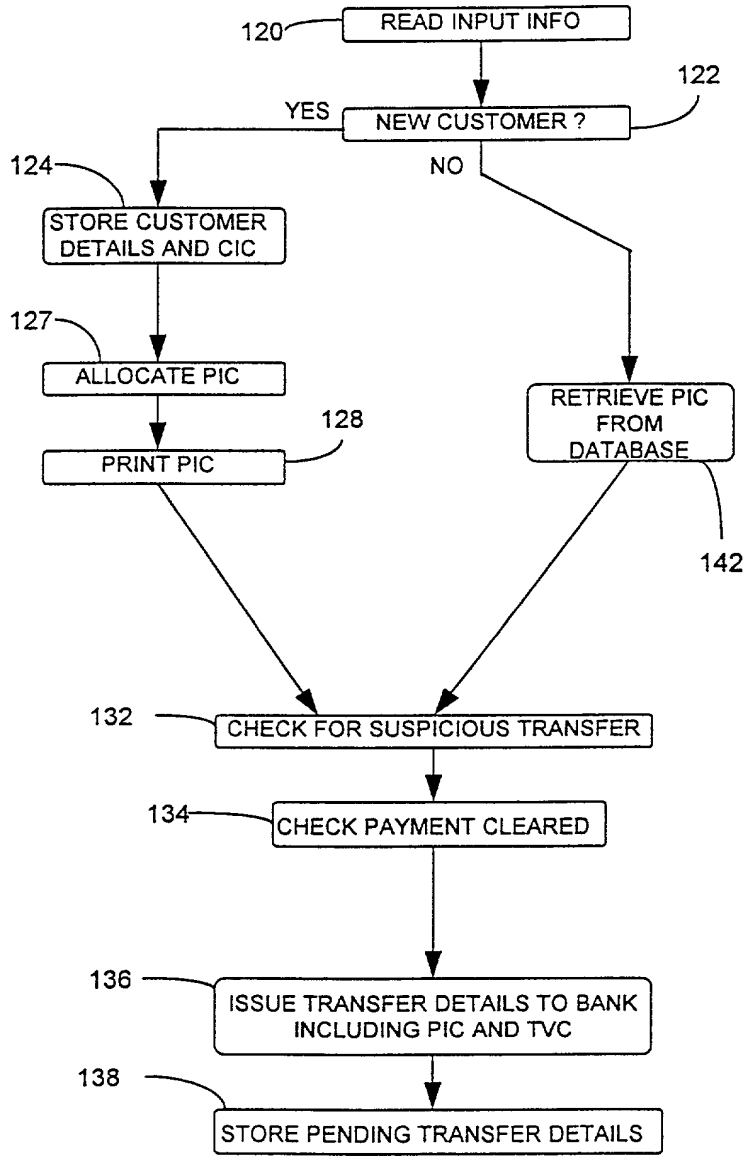
120
READ INPUT INFO
122
YES
NEW CUSTOMER ?
NO
124
STORE CUSTOMER DETAILS AND CIC
127
ALLOCATE PIC
128
PRINT PIC
RETRIEVE PIC FROM DATABASE
142
132
CHECK FOR SUSPICIOUS TRANSFER
134
CHECK PAYMENT CLEARED
136
ISSUE TRANSFER DETAILS TO BANK INCLUDING PIC AND TVC
138
STORE PENDING TRANSFER DETAILS

Fig. 9

Practitioner's Docket No. 228-009468-US(PAR) **PATENT**

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL, CONTINUATION, OR C-I-P)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type:

(check one applicable item below)

- ☐ original.
- ☐ design.
- ☐ supplemental.

NOTE: If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.

- ☒ national stage of PCT.

NOTE: If one of the following 3 items apply, then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR C-I-P.

NOTE: See 37 C.F.R. § 1.63(d) (continued prosecution application) for use of a prior nonprovisional application declaration in the continuation or divisional application being filed on behalf of the same or fewer of the inventors named in the prior application.

- ☐ divisional.
- ☐ continuation.

NOTE: Where an application discloses and claims subject matter not disclosed in the prior application, or a continuation or divisional application names an inventor not named in the prior application, a continuation-in-part application must be filed under 37 C.F.R. § 1.53(b) (application filing requirements — nonprovisional application).

- ☐ continuation-in-part (C-I-P).

INVENTORSHIP IDENTIFICATION

WARNING: *If the inventors are each not the inventors of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.*

My residence, post office address and citizenship are as stated below, next to my name. I believe that I am the original, first and sole inventor *(if only one name is listed below)* or an original, first and joint inventor *(if plural names are listed below)* of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

METHOD AND APPARATUS FOR MONEY TRANSFERS

SPECIFICATION IDENTIFICATION

the specification of which:

(complete (a), (b), or (c))

(a) ☐ is attached hereto.

NOTE: "The following combinations of information supplied in an oath or declaration filed on the application filing date with a specification are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

"(1) name of inventor(s), and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration on filing;

"(2) name of inventor(s), and attorney docket number which was on the specification as filed; or

"(3) name of inventor(s), and title which was on the specification as filed."

Notice of July 13, 1995 (1177 O.G. 60).

(b) ☒ was filed on _____, as ☒ Serial No. 0 9 / 555,590
or ☐ _____
and was amended on _____ *(if applicable).*

NOTE: Amendments filed after the original papers are deposited with the PTO that contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67.

NOTE: "The following combinations of information supplied in an oath or declaration filed after the filing date are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

"(1) name of inventor(s), and application number (consisting of the series code and the serial number; e.g.,08/123,456);

"(2) name of inventor(s), serial number and filing date;

"(3) name of inventor(s) and attorney docket number which was on the specification as filed;

"(4) name of inventor(s), title which was on the specification as filed and filing date;

"(5) name of inventor(s), title which was on the specification as filed and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration; or

"(6) name of inventor(s), title which was on the specification as filed and accompanied by a cover letter accurately identifying the application for which it was intended by either the application number (consisting of the series code and the serial number; e.g.,08/123,456), or serial number and filing date. Absent any statement(s) to the contrary, it will be presumed that the application filed in the PTO is the application which the inventor(s) executed by signing the oath or declaration."

Notice of July 13, 1995 (1177 O.G. 60).

(c) ☒ was described and claimed in PCT International Application No. PCT/GB98/03537, filed on 11/26/98 and as amended under PCT Article 19 on _____ *(if any).*

SUPPLEMENTAL DECLARATION (37 C.F.R. § 1.67(b))

(complete the following where a supplemental declaration is being submitted)

☐ I hereby declare that the subject matter of the

☐ attached amendment

☐ amendment filed on _____

was part of my/our invention and was invented before the filing date of the original application, above-identified, for such invention.

ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56,

(also check the following items, if desired)

☒ and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and

☐ in compliance with this duty, there is attached an information disclosure statement, in accordance with 37 CFR 1.98.

PRIORITY CLAIM (35 U.S.C. §§ 119(a)–(d))

NOTE: "The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by § 1.63. The claim for priority and the certified copy of the foreign application specified in 35 U.S.C. 119(b) must be filed in the case of an interference (§ 1.630), when necessary to overcome the date of a reference relied upon by the examiner, when specifically required by the examiner, and in all other situations, before the patent is granted. If the claim for priority or the certified copy of the foreign application is filed after the date the issue fee is paid, it must be accompanied by a petition requesting entry and by the fee set forth in § 1.17(i). If the certified copy is not in the English language, a translation need not be filed except in the case of interference; or when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner, in which event an English language translation must be filed together with a statement that the translation of the certified copy is accurate." 37 C.F.R. § 1.55(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119(a)–(d) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

(d) ☐ no such applications have been filed.

(e) ☒ such applications have been filed as follows.

NOTE: Where item (c) is entered above and the International Application which designated the U.S. itself claimed priority check item (e), enter the details below and make the priority claim.

PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119(a)-(d)

COUNTRY (OR INDICATE IF PCT)	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 37 USC 119
			☐ YES NO ☐
			☐ YES NO ☐
			☐ YES NO ☐
			☐ YES NO ☐
			☐ YES NO ☐

CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S)

(34 U.S.C. § 119(e))

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

PROVISIONAL APPLICATION NUMBER — FILING DATE

_____ /_____ _____

_____ /_____ _____

_____ /_____ _____

CLAIM FOR BENEFIT OF EARLIER US/PCT APPLICATION(S) UNDER 35 U.S.C. 120

☐ The claim for the benefit of any such applications are set forth in the attached ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN PART (C-I-P) APPLICATION.

ALL FOREIGN APPLICATION(S), *IF ANY*, FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

Great Britain	9725430.4	1 December 1997
PCT/GB98/03537	26 November 1998	

NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR C-I-P APPLICATION for benefit of the prior U.S. or PCT application(s) under 35 U.S.C. § 120.

POWER OF ATTORNEY

I hereby appoint the following practitioner(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

(list name and registration number)

Clarence A. Green (24,622)
Mark F. Harrington (31,686)

(check the following item, if applicable)

☐ I hereby appoint the practitioner(s) associated with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

☐ Attached, as part of this declaration and power of attorney, is the authorization of the above-named practitioner(s) to accept and follow instructions from my representative(s).

SEND CORRESPONDENCE TO

☒ Address

Clarence A. Green
PERMAN & GREEN, LLP
425 Post Road
Fairfield, CT 06430

☐ Customer Number 2512

DIRECT TELEPHONE CALLS TO:
(Name and telephone number)

Clarence A. Green
(203) 259-1800

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE(S)

NOTE: Carefully indicate the family (or last) name, as it should appear on the filing receipt and all other documents.

Full name of sole or first inventor

Henry (GIVEN NAME) WYNDHAM (MIDDLE INITIAL OR NAME) WODEHOUSE (FAMILY (OR LAST NAME))

Inventor's signature _____

Date 5/7/00 Country of Citizenship United Kingdom

Residence ~~Forest Gate Farm Cottage, Delamere Road, Norley, Cheshire W A6 6NF,~~ United Kingdom

Post Office Address ~~Forest Gate Farm Cottage, Delamere Road, Norley, Cheshire W A6 6 NF,~~ United Kingdom

---

Full name of second joint inventor, if any

Stuart (GIVEN NAME) PETER (MIDDLE INITIAL OR NAME) MCDONALD (FAMILY (OR LAST NAME))

Inventor's signature _____

Date 5th July 2000 Country of Citizenship United Kingdom

Residence Limes Farmhouse, Upper Lambourn, Hungerford, Berks, RG17 8RG, United Kingdom

Post Office Address Limes Farmhouse, Upper Lambourn, Hungerford, Berks, RG17 8RG, United Kingdom

---

Full name of third joint inventor, if any

Jonathan (GIVEN NAME) Mark (MIDDLE INITIAL OR NAME) FRANCIS (FAMILY (OR LAST NAME))

Inventor's signature _____

Date 5/7/00 Country of Citizenship United Kingdom

Residence 1 Pipers End, Heswall, Wirral L60 6LW, United Kingdom

Post Office Address 1 Pipers End, Heswall, Wirral L60 6LW, United Kingdom

(check proper box(es) for any of the following added page(s) that form a part of this declaration)

☐ **Signature** for fourth and subsequent joint inventors. *Number of pages added* _____.

• • •

☐ **Signature** by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. *Number of pages added* _____.

• • •

☐ **Signature** for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. *Number of pages added* _____

• • •

☐ Added page for **signature** by one joint inventor on behalf of deceased inventor(s) where legal representative cannot be appointed in time. (37 CFR 1.47)

• • •

☐ Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (C-I-P) application.

☐ Number of pages added _____

• • •

☐ Authorization of practitioner(s) to accept and follow instructions from representative.

• • •

(if no further pages form a part of this Declaration, then end this Declaration with this page and check the following item)

☒ This declaration ends with this page.